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MONTHLY LETTER OF THE BUREAU OF ENTOMOLOGY
UNITED STATES DEPARTMENT OF AGRICULTURE

Number 43.

November, 1917.

WOMENS WAR RELIEF ASSOCIATION OF THE DEPARTMENT OF AGRICULTURE.

On November 15, at a conference of the women employees and the wives of the men employees of the Department of Agriculture, called by Mrs. Houston, the above organization was created.

This organization has been made an auxiliary of the Red Cross, because the Red Cross is the organized official medium for the conduct of the war relief work of the Nation. It is probable that later all supplies which we will wish to send to France can go only through the Red Cross, and that wool can be obtained from no other agency.

The association however is independent; some of the activities must be conducted in close cooperation with the Red Cross, while others must be conducted independently.

Funds are needed for knitting, surgical dressings, garment making, housing, entertainment, books, scrap books for hospitals, and war orphans, CONTRIBUTIONS ARE DESIRED FROM ALL EMPLOYEES OF THE BUREAU, BOTH IN WASHINGTON AND IN THE FIELD, ALSO FROM THEIR FAMILIES AND FROM ANYONE INTERESTED IN THE WORK.

Send your contributions to Mrs. H. S. Bishop, Bureau of Entomology, and specify, if you have any preference, to what purpose you desire the contribution to be put.

THE WAR LIBRARY.

As was noted in the October Monthly Letter the million-dollar fund for the thirty two cantonment libraries for our soldiers has been considerably over-subscribed. Such a response on the part of the American people to the libraries' call is most encouraging, but there is a further need they can help satisfy- that for books themselves. The camp libraries can use to advantage good novels- such as those by Doyle, O. Henry, Owen Wister, Jack London, Kipling (both poems and stories), Dickens and Scott. There is also a great demand for technical books, particularly those on aviation, motors, engineering and mathematics, also for text books, both new and old, especially for French readers and dictionaries. Most of us could go through our shelves, as many have already done, and find several books of this kind which we do not care to keep; these would be of great service in the camp libraries. Even the old books and magazines which cannot actually be used in the cantonment libraries will be accepted as they can be sold and the proceeds used to purchase new books. Members of this Bureau, living in Washington may bring their books to the Bureau library or to the Library of the Department of Agriculture, whence they will be forwarded from time to time to those in charge of the work.

VISITORS TO THE BUREAU DURING NOVEMBER.

Dr. L. P. de Bussy, formerly Biologist to the Tobacco Planters' Association at Deli, Sumatra, who visited this country in 1910 in the effort to get parasites of injurious tobacco insects for importation into Sumatra, called at the office early in the month on his way back from Sumatra to Amsterdam, where he is to take

the position of Director of the Dutch Colonial Museum. Doctor de Bussy reports that *Trichogramma pretiosa* was successfully introduced and established in Sumatra.

Prof. H. Maxwell-Lefroy, formerly Imperial Entomologist in India, and now lecturer on applied zoology at the Imperial College of Science, London, visited Washington on his way from England to Australia, where he is going to investigate weevil damage to stored wheat which is to be shipped from Australia to the United States.

Prof. Herbert Osborn of Ohio State and Dr. E. D. Ball, State Entomologist of Wisconsin, spent several days with Mr. E. H. Gibson examining types of Homoptera at the National Museum.

HESSIAN-FLY CONFERENCE.

A general conference of the Hessian-fly staff will take place in Washington, during the first week in January, for the purpose of comparing notes, for consultation with the Chief of the Bureau and others, but especially to consider the Hessian-fly problem in connection with adaptations and modifications of agronomic practice.

Experts from the U. S. Bureau of Plant Industry will be detailed to meet the Hessian-fly men in joint conference.

WANTED: LARVAE OF THE LESSER CLOVER-LEAF WEEVIL.

The heads of all field stations are requested to forward to this office specimens of the larvae of the lesser clover-leaf weevil and any other related species which they may be willing to contribute. These are for use in making illustrations in connection with the studies of Messrs. Boving and Pierce in order to facilitate the determination of the economic species of snout beetles. This work will be the advantage of all workers in this branch of the Bureau because of all workers in this branch of the Bureau because of the fact that it will make possible the prompt determination of such larvae in the future.

INFORMATION ON GRASSHOPERS WANTED.

C. N. Ainslie has propounded the following questions regarding grasshopper investigations and control. If any of the men of this branch or any other branch of the Bureau are able to answer one or all of these questions we should be very glad to receive the information.

GRASSHOPPER QUERIES.

- (1) How early in life will young hoppers begin to eat poisoned bran?
- (2) Do any of the adult hoppers survive the winter?
- (3) How long after mating does oviposition occur?
- (4) Do males mate with more than a single female?
- (5) Is it fact or mere theory that hopper eggs exposed to the air over winter, or during the spring, will perish?

(6) Is it usual for females of any destructive species to deposit more than a single egg mass?
[Both Riley and Bruner assert that they do in some instances.
I have dissected a good many, especially of the *M. femur rubrum*, and have never found any apparent trace of undeveloped eggs in individuals that hadoviposited.]

(7) Is the formula recommended for poisoned bran the best that can be compounded or can it be modified materially to secure cheapness and still produce equally good results?

GIPSY MOTH AND BROWN-TAIL MOTH INVESTIGATIONS.

A. F. Burgess, Entomologist In Charge.

GIPSY MOTH EMPLOYEES WHO HAVE ANSWERED THE CALL TO THE COLORS.

Dwight F. Barns, Flying Cadet, Signal Reserve corps, U. S. Army, Cambridge, Mass.
John W. Bradley, Flying Cadet, Signal Reserve Corps, U. S. Army, Cambridge, Mass.
David Broude, Yeoman U. S. Navy, Boston, Mass.
Thomas M. Cannon, Private, U. S. Army, Camp Devens, Ayer, Mass.
Henry F. Cummings, Private, U. S. Army, Camp Devens, Ayer, Mass.
Alfred D. Darling, Pharmacist's Mate, U. S. Navy, Charlestown, Mass.
Senekerim M. Dohanian, Flying Cadet, Signal Reserve Corps, U. S. Army,
Cambridge, Mass.
Cornelius J. Driscoll, Yeoman, U. S. Navy, Washington, D. C.
Carlisle C. Eggleston, Private, U. S. Army, Camp Devens, Ayer, Mass.
William G. Johnson, Private, U. S. Army.
George J. McCarthy, Yeoman, U. S. Navy, Charleston, Mass.
Willis Munro, Officers' Training Camp, Plattsburgh, N. Y.
Frederick W. Merrill, Seaman, U. S. Navy.
Rolf V. Robsham, Sergeant, U. S. Army, Camp Devens, Ayer, Mass.
Henry J. Rousseau, Private, U. S. Army, Norwich, Conn.
Chellis W. Stockwell, Private, Aviation Corps, San Antonio, Texas.
Orrin S. Thompson, Private, U. S. Army, Camp Devens, Ayer, Mass.

In addition to the above list we have 66 employees
who are subject to the draft and many of whom have voluntarily enlisted without
notifying this office so that it is impossible to give an accurate record of their
service.

Resignations.

Harry W. Allen, Scientific Assistant, October 26, 1917.

George E. Clement, Assistant in Forest Management, Nov. 30, 1917.

Appointment.

Robert Matheson, Specialist, in Hymenoptera, effective October 3, 1917.

Visitors.

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Messrs. Leonard S. McLain and W. H. Brittain of the office of the Dominion
Entomologist, Canada.

Moving picture films showing various phases of the gipsy-moth investigation were exhibited at the meeting of the Entomological Society of Ontario at McDonald College, and also at Ottawa, Canada, during November.

LIBRARY

Miss Mabel Colcord, Librarian.

NEW BOOKS.

Bacot, A. W. The louse problem (Proc. Roy. Acc. Med. v.10, no. 6 (Section of Epidemiol. and State Med.) p. 61-94, Apr. 1917. [Abstract in Trop. Dis. Bul. v.10, p. 242-243])

Bernard, Charles. Over enige Ziekten en Plagen van de Thee op de Oostkust van Sumatra. Batavia, 1917. 2lp. illus. (Departement van Landbouw, Nijverheid en handel. Mededeelinger van het proefstation voor thee, N. LIV)

Emmerez de Charmoy, Donald d'. Moth-borers affecting sugar-cane in Mauritius. Port Louis 1917. (Mauritius- Dept. Agr. Bul. Sci. Ser. no. 5)

International Harvester Company of New Jersey, Inc., Agr. Exten. Dept. Dip the cattle tick. Chicago, 1916. 16p. illus.

Jamaica- Government Entomologist. (A. H. Ritchie) Annual report...1916-1917. Kingston, 1917.

Kentucky- Agr. Exten. Dept. Circular 15. Lexington, June 1917. p. 63-89. illus. (Garman, Household pests and their treatment)

Kuwana, S. I. Nippon Kaigara-Mushi Dzusetsu (Coccidae of Japan) v.1-2. 1917. contains many beautifully collored plates.

Masi, L. Chalcididae of the Seychelles Islands. With an appendix by J. J. Kieffer. (Novitates zoologicae v.24, p. 121-230. illus. 1917).

Noguchi, Hideyo and Kudo, Kokusaburo. The relation of mosquitoes and flies to the epidemiology of acute poliomyelitis. (Jour. Exp. Med. v.26, no. 1, p. 49-57, July 1, 1917.)

Osborn, H. F. The origin and evolution of life. N. Y., 1917. 322p. illus. Bibliography, p. 293-306.

Pacottet, Paul. Viticulture. Paris, 1917. 552p. illus. Parasites animaux. p. 473-543.

Radcliffe, Lewis. Fishes destructive to the eggs and larvae of mosquitoes. Washington, July 1, 1917. 19p. illus. (Dept. Commerce, Bur. Fisheries. Econ. Circular 17)

Scott, J. R. Studies upon the common house-fly (*Musca domestica* Linn.) (Jour. Med. Research v.37, no. 1, p. 101-124. 2 tab. Sept. 1917)

Searle, Alvin. The mosquito fish, *Gambusia affinis* (Baird and Girard), in the Philippine Islands. Phil. Jour. Sci. v.12, Sec. D, no. 3, p. 177-187, illus. May 1917. Short reviews of the literature on mosquito destruction examined by the author.

Shiraki, Tokuichi. Paddy borer (*Schoenobius incertellus* Wlk.) Taihoku, Agr. Exp.Sta. Formosa. [pref. August 1915] 256p. 22pl. (partly col.) Principal literature referred to, p. 255-256.

U. S. Dept. Agr. Forest Service. Guide book for the identification of woods used for ties and timbers, by Arthur Koehler. Washington, 1917. 74p. illus. 31 pl. Oct. 15, 1917

Weed, H. E. Spraying for profit. Cleveland, 1917. ed. 17. 61p. 31 fig. 8°

BEE CULTURE
E. F. Phillips, Apiculturist in Charge.

Dr. E. F. Phillips return November 14 from an extended western trip, taken for the purpose of arranging for extension work in bee keeping. In addition to conferences with various extension directors, meetings of beekeepers were held in Utah, Idaho and California. Most beekeepers in the west are awake to the need of increasing honey production next year and are making plans to that end. The bee disease situation in California is more serious than had been realized due to a failure of beekeepers to differentiate American foulbrood and European foulbrood. Many are attempting to treat American foulbrood by methods applicable only to European foulbrood with disastrous results.

C. E. Bartholomew has been transferred from Tennessee to carry on extension work in beekeeping in Wyoming, Colorado, Utah and southern Idaho. He will go first to Wyoming to complete a trip to the northern part of the state before severe weather begins.

Kenneth Hawkins is in Florida for a few weeks. It appears that American foulbrood has broken out in the Apalachicola river region and beekeepers are greatly disturbed.

George S. Demuth attended a meeting of Farm Advisers and Farmers' Institute Workers at Ithaca, New York, on November 26.

E. F. Atwater of Idaho has been appointed as Special Field Agent and will conduct extension work in California, Arizona and New Mexico. He will report direct to the Extension Director of California. Mr Atwater has for several years managed 1000 colonies of bees in Idaho.

G. C. Mathews of Idaho has been appointed Special Field Agent and has reported to Washington for conference before leaving for field work. Mr. Matthews was an extensive beekeeper in Idaho and has had experience in commercial beekeeping in several western states.

W. Atkins of the Iowa Agricultural College has been appointed Special Field Agent and has reported for conference before taking up extension work in Iowa, Missouri, Kansas and Nebraska.

P. W. Erbaugh spent the month of November in Illinois on extension work. Before entering the Bureau service, Mr. Erbaugh was deputy apiary inspector of Michigan and instructor in beekeeping at the Agricultural College, East Lansing, Michigan. He is the son of Mr. D. W. Erbaugh, State Apiary Inspector of Indiana.

SOUTHERN FIELD CROP INSECT INVESTIGATIONS.
W. D. Hunter, Entomologist in Charge.

After spending several weeks in Texas superintending the work of eradication of the pink bollworm which has been discovered at several points in the State, Doctor Hunter returned to Washington for conferences which were held November 15 to 17. He left Washington on the 18th for another trip to Texas in connection with the pink bollworm work.

Messrs. Webb, Tucker, and Whittington were engaged in determining the boll-weevil dispersion. Mr. Webb resorted to Washington on November 12.

O. G. Babcock, of Colorado, has been appointed and assigned to the laboratory of the Bureau at Dallas, Texas, for work under the project approved September 17 entitled "Emergency extension work in the control of insects injurious to live stock."

DECIDUOUS FRUIT INSECT INVESTIGATIONS.
A. L. Quaintance, Entomologist in Charge.

H. B. Scammell, in charge of the Bureau laboratory at Toms River, N. J., where cranberry-insect investigations are being conducted, made a survey trip through Virginia and North Carolina, in company with G. M. Darrow, of the Bureau of Plant Industry, making observations on cranberry insects in that region.

R. A. Cushman, having completed his field investigations for the season, is now in Washington and will be engaged in systematic work on Hymenopterous insects.

H. K. Plank, in charge of the Bureau's laboratory at Grand Junction, Colo., where investigations are being conducted on the codling moth, made a trip through the cranberry bogs of Washington and Oregon in company with E. J. Newcomer, of this Bureau and a representative of the Oregon Agricultural College, to observe cranberry insects in that region.

E. H. Seigler, in charge of the Bureau's laboratory at Wallingford, Conn., having completed his field investigations, is now in Washington and will be engaged in the preparation of manuscripts.

A. J. Flebut, in charge of the Bureau's laboratory at Paxinos, Pa., where investigations of chestnut weevils are being conducted, has completed his field investigation for the season and is now in Washington, where he will be engaged in the preparation of manuscripts.

L. C. Griffith, formerly working under Dr. Hokins's direction in connection with shade-tree insect investigations, has been transferred to Deciduous Fruit Insect Extension fund, and will be engaged in extension work in deciduous-fruit insect control in New York State, with headquarters at Ithaca, N. Y.

Glyde C. Hamilton, a graduate of the Kansas State College, has been appointed Special Field Agent, and will be engaged in extension work in deciduous fruit insect control in Missouri and Arkansas, with headquarters at Columbia, Mo.

Joseph S. Stanford, a graduate of the Utah Agricultural College, has been appointed Special Field Agent and will be engaged in extension work in deciduous fruit insect control in Idaho and Colorado.

FEDERAL HORTICULTURAL BOARD
C. L. Marlatt, Chairman.

The Pink Bollworm Situation.

Two additional outbreaks of the pink bollworm were reported to this Department in November. One of these is near Beaumont, Texas, in the neighborhood of one of the mills which had received cotton seed from Mexico in 1916. Fortunately, the infested field was a small one and was the only cotton within several miles of the mill. But two or three infected bolls were found and a clean-up of this field has been made in the same thorough-going manner as in the case of the infestation found earlier in the season at Hearne, Tex. Two additional fields, on nine miles west of Beaumont and the other about fifteen miles south, were also found to be infested, the infestation evidently coming from the use of seed obtained at the Beaumont mill for planting. These fields have also been given the same cleanup. The other infestation surrounds more or less intermittently Trinity Bay, Tex., north of Galveston. The insect was first found at Anahuac on the eastern shore of the Bay, where the infestation was determined to extend fifteen or twenty miles along the Bay and to a depth of four or five miles, involving perhaps altogether four or five hundred acres of cotton. This acreage is fairly evenly and rather heavily infested indicating an establishment of long standing, perhaps two or three years. Later, additional infested fields were found to the north and west of the Bay, the total infested acreage involved being upwards of 5,000. The source of this infestation has not been definitely determined. There is no record of any movement of Mexican cotton seed to this immediate region for planting, and no cotton mill in Texas which received seed from Mexico seems to be involved. Two possible theories to account for this infestation have been advanced: (1) That some planter several years ago introduced Egyptian seed into the district, possibly even before the quarantine against foreign seed went into effect in 1918; or (2) that some ship load or schooner load of cotton seed from Tampico, Mexico, enroute to Galveston may have been wrecked at the mouth of the Bay in the great storm of 1915 and the seed washed up on the shores of the Bay. It is that as a result of this great storm quantities of cotton seed were washed on the shores of the Bay and in some instances carried many miles inland by the high water, the supposition being that this seed came from wrecked stores or vessels at the Port of Galveston.

At any rate the infestation in this region is of the most serious character. Fortunately this district is a rather isolated one, surrounded for the most part at least by wide stretches of country unsuited to agriculture or at least where no cotton is grown. Large forces of experts and laborers have been assembled here and the clean-up operations are being pushed with the utmost speed.

The Mexican Situation

Mr. Busck has returned from several months in Mexico. The important results of his trip are; (1) the issuance of a quarantine by the Mexican authorities against the Laguna district prohibiting the transport of cotton seed from

that district; (2) the forbidding by President Carranza of the growth of cotton in the Laguna for three years beginning in 1910 (in order has the recommendation and promise of hearty cooperation of the principal planters of the Laguna district); (3) arrangements for the safe disposition and future control of a small infested region at Allende, Mexico; and (4) preliminary arrangements for the establishment of a research station to study the pink bollworm in the Laguna district. A good deal of survey work was also done by Mr. Busck both as to the Laguna, and Monterrey districts, and the cotton-growing areas of Mexico contiguous to the United States. So far the only known infestation in Mexico is the Laguna district with the possible remaining infestation of some old abandoned fields near Monterrey, and the Allende district some thirty miles south of Eagle Pass. The work done in Mexico by Mr. Busck was materially aided by the hearty cooperation of Mr. Eduardo G. Tejada, a very intelligent and public-spirited citizen of Mexico who is being considered as a possible aid in the future work in Mexico, more particularly in relation to the research station.

The Texas Work.

Dr. Hunter came to Washington for a few days to consult with the Board over the pink bollworm situation in Texas, and has returned to resume active field charge of the work. Mr. W. W. Evans of Dallas, Tex., has been selected to have local charge of the field direction of the survey, clean-up work, and free-zone work in Texas, and is now with Dr. Hunter at Beaumont. A considerable number of additional experts have been appointed as field inspectors for the Texas work. The Mexican border port inspection will hereafter be under the direction of Mr. R. Kent Beattie, who has already made two trips in relation to this work to the border for the Board.

FOREST ENTOMOLOGY A. D. Hopkins, Forest Entomologist.

Mr. Snyder has returned from a trip to Cambridge Mass., where a study of the termites he collected on an extensive field trip this season and of the specimens in the collection of the Branch of Forest Entomology was made with Mr. Nathan Banks in comparison with Hagen's types and other material there. All told, 31 species of termites are now recognized in the United States. Fourteen of these were found to be new to science and are being described by Mr. Banks. Two new generic record for the United States were also established by this study.

On his way back Mr. Snyder stopped over in New York City and consulted with engineers of the American Telephone and Telegraph Company in regard to the damage by the wood-boring *Seobacia acelivis* Le. to the lead sheathing of telephone and telephone cables, so prevalent in California, and a study of control measures. As a result of this conference at which cooperative experimental work was decided on, cage 12 feet in length, 6 feet in width and 6-7 feet in height and covered with mesh of 17 squares per inch is being erected for the purpose on the grounds of the Forest Insect Station at Falls Church, Virginia. From the rafters in the roof of this cage lead sheath cables of different alloy composition, specially prepared by the Company for the purpose, will be strung on various types of cable

rings. Insects collected by Mr. Burke and imported from California for the purpose will be released in the cage and their habits and methods of attacking the cable as well as the relative resistance of various alloys will be studied.

In addition to the cage tests glass cylinders, 6 inches in diameter, 8 inches in length and open at both ends will be arranged on shelves and living beetles placed in them, covering the ends with plates of various lead alloys. The Company has had these lead plates rolled and has shipped them to the Forest Insect Station at Falls Church, where the experiments are to be started next spring.

STORED PRODUCT INSECT INVESTIGATIONS.
E. A. Back, Entomologist in Charge.

At the request of the New York agents of Lloyds, Dr. E. A. Back and Mr. A. B. Duckett spent November 7 at Newport News on board the Dutch steamships Samarinda, Gorontalo, and Ternate. These ships are enroute to Holland, having sailed from Batavia, Java, or nearby ports during the past summer via Japan, San Francisco, Panama Canal, and Newport News. The Ternate sailed from Batavia on January 18, 1917, for Holland via the Suez Canal, was held by her agents at the Canal from February 1 to July 1 because of war conditions and then ordered back to Java. Her captain was instructed to proceed on August 11 to Holland via the Panama Canal and arrived at Newport News on October 6, being the last of the three vessels to reach Newport News. The Gorontalo sailed from Batavia on January 25 and was the first to arrive at Newport News (Aug. 20). The Samarinda was laden with 8,000 tons of rice, but the other vessels carried a miscellaneous and exceedingly valuable cargo of various grades of tobacco, coffee, rice, corn, tea, copra, cinchona bark, fats, etc. Having been enroute for such a long period in a tropical and semitropical climate, insects had multiplied to a point where they attracted much attention. The ships were so completely laden that it was impossible to make an examination of only those portions of the cargo that were uppermost in the holds. Examinations were therefore restricted to tobacco, rice and copra. In all instances copra was found badly infested, often nearly destroyed, by *Sylvanus surinamensis* and *Necrobia rufipes*. Such samples of rice as were presented for inspection were infested with *Calandra oryza*, *Tribolium* and lepidopterous larva. The tobacco was generally infested with *Lasioderma serricorne* which had succeeded in ruining the outer one to three inches of the bales of superior Sumatra wrapper tobacco. On all ships the above mentioned pests were very troublesome about the decks and staterooms during warm days. Adult *Sylvanus surinamensis* were found congregated in lots of 100 or more in irregularities of the hatch covers and dead specimens were found everywhere, as between the phonograph records of the captains office, about the dining rooms, etc. Portions of one vessel that had recently been painted white on a warm day, were well coated with tobacco beetles, that had emerged through the hatches and funnels.

Unfortunately, for observation purposes, the day on which the examinations were made was cold and the insects were not active.

The various items of the cargoes were so arranged that they could not be fumigated. Fortunately the available consignments of Sumatra wrapper tobacco were in the upper holds where they could be easily ventilated. Inasmuch as the

captains believed that they would be able to discharge theis cargoes in Holland within two months, and as their voyage to Holland will take them through a cold climate, they were advised that the best method of procedure will be to keep the holds as cold as possible. Temperature records of the upper hold indicate that if they are kept properly ventilated at this season of the year, further injury can be stopped. If, however, the ships should be forced to remain at Newport News until next spring, it would be necessary to discharge the cargoes in order to prevent the complete destruction of the susceptible portions of the cargoes.

TROPICAL AND SUBTROPICAL FRUIT INSECT INVESTIGATONS
C. L. Marlatt, Entomologist in Charge.

Wm. M. Mann has recently been commissioned to go to Cuba to continue the work which Harold Morrison was doing there in relation particularly to the black fly and other insects affecting tropical and subtropical plants, having more particular relation to pests against which it may be necessary to take quarantine or other restrictive measures to exclude from the Continental United States.

TRUCK CROP INSECT INVESTIGATIONS
F. H. Chittenden, Entomologist in Charge.

Marion R. Smith, Scientific Assistant, is visiting at his home at Pendleton, S. C., from which place he will go to Baton Rouge, La., to assist Thomas H. Jones in investigations of truck-crop insects, especially insects injurious to sweet potatoes.

Eugene G. Smyth, Special Field Agent is engaged in extension work in the State of Texas, with headquarters at College Station. He is associated with Mr. H. K. Laramore and while working on insects injurious to truck crops in general, they are paying special attention to the sweet-potatoe weevil.

Roy E. Campbell, Scientific Assistant, has removed his headquarters from Pasadena, Cal., to 800 N. Marguerita Ave., Alhambra, Cal.

Harold J. Ryan, Special Field Agent in extension work, accompanies Mr. Campbell to Alhambra.

Thomas H. Jones will visit Washington, D. C., early in December for consultation.

R. C. Pickett, of Sheboygan, Wis., has accepted a position as special field agent in the extension service for work in the Southern States.

EXTENSION ENTOMOLOGY.
J. A. Hyslop, Entomologist in Extension Work.

During the last month projects agreements for extension work in Entomology have been approved by the following States:

Arizona	Florida
Kansas	Oregon
South Carolina	Texas
Utah,	

bringing the total number of states by whom projects have been approved to 21. Projects have been submitted during the month to Colorado, Connecticut, Massachusetts, Rhode Island and Washington.

The total number of men now in the field on extension work in entomology is 32, of which 7 are research men doing extension work.

As a result of an extended trip through the middle and western States by Dr. Phillips to ascertain the needs of extension work in honey production, informal arrangements have been made with 22 States for cooperative extension work along this line. Owing to the scarcity of men available for extension work in apiculture it has been found necessary to have expert cover several States. The States have been grouped tentatively as follows:

Group I	California, Arizona and New Mexico
II	Washington, Oregon, Northern Idaho and Montana
III	Southern Idaho, Wyoming, Colorado and Utah
IV	Minnesota, Wisconsin and Illinois
V	Kansas, Nebraska, Iowa and Missouri
VI	Michigan, Indiana and Ohio
VII	New York, Pennsylvania and New Jersey

Cooperative work is now being conducted along this line in North Carolina and an extension apiculturist is working at large throughout the 15 Southern States.

The lines of work mentioned in the last Monthly Letter are being continued and plans are being made for an extensive drive in the control of insects affecting backyard gardens by the specialists in truck insects.

CEREAL AND FORAGE INSECT INVESTIGATIONS

W. R. Walton, Entomologist in Charge.

Geo. W. Barber, attached to the Hagerstown [Md.] field laboratory, has resigned from the service to accept a commission in the United States Cavalry, and will report for duty at Fort Leavenworth, Kansas, November 26.

A. H. Sherwood has been appointed Special Field Agent in Extension Entomology and detailed to report for duty at Brookings, S. Dak., January first. Mr. Sherwood will organize a campaign in connection with grasshopper control during the early spring in order to meet an infestation which seems almost certain to occur in that State.

